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ABSTRACT

To explore whether there is a recognizable point (a terminology-setting event, e.g., a scholarly conference, a special issue of a journal, or a particularly influential journal article) in the development of a new branch of knowledge that serves to codify a vocabulary for the researchers of that field, electronic and manual searches were conducted for materials published before and after a terminology-setting event in three areas: the agenda setting function of the press, the New World Information Order, and critical viewing skills. It was hypothesized that the number of items found would increase after a terminology-setting event. For each research area, the appropriate combination of manual indexes and electronic information systems was used. Results showed that the percentage of items found both electronically and manually went from 8% before the terminology-setting event to 19% after. However, the percentage of items located only electronically actually fell from 55% before the terminology-setting event to 43% after. These results suggest that electronic information retrieval systems do not necessarily lead to an increase in the number of identified items, and that terminology-setting events have a much greater effect on the researchers in a field than on the information retrieval systems serving them. Producers of these systems may have trained incapacities to respond to the events and thus may systematically exclude new terms, since they are not in the "speech communities" that determine the language of a field. (HOD)

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Terminology-Setting Events and Information Retrieval in Mass Communication Research

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Terminology-Setting Events and Information Retrieval in Mass Communication Research

by Kathleen A. Hansen

As the conversion of modern societies from industrial to information-based economies proceeds, a convergence of interests and needs in a number of professions is becoming apparent. The scholarly researcher, the journalist, and the information handler (librarian, indexer) all have several goals in common. Each wishes to organize and locate the most useful information in the most efficient manner. Each also wishes to produce the best product (research report, news account, bibliography) using the full range of sources available. Developments in computer and communication technology have allowed for the creation of powerful systems to aid in the storage, manipulation and handling of a great deal of information.

As a result of these developments, researchers, journalists and information handlers are using electronic data bases to aid them in their information searching and manipulation tasks.[1] While electronic systems may appear to be efficient and complete in their coverage of the literature of a subject area, there may be serious consequences from total reliance on such systems. Information storage systems function as a sort of communication facilitator, in that they allow members of a group to learn what has been "said" about a topic by others. These systems are based on language, and a complex set of decisions about how best to define subject areas by key words and headings. The nature of the language used, and decisions about which terminology to employ in these systems can affect the efficiency of communication among the users of the systems.

A recent paper by Robert Arundale calls for the integration of research on language with the research on communication.[2] He describes a macro-sociological perspective which treats language as a form of behavior common to all members of a group.[3] Language structure, language processing and language use and function are examined in the context of a "speech community"--a social group which shares principles for choosing and interpreting language structures.[4] Language is viewed as a human communication function, and the macro-sociological perspective can enlighten the study of social group communication.

Communication among social groups such as scientists has been a significant topic of interest to communication researchers.[5] One characteristic of communication among scientists, as an example of a social group, is the use of a specialized language, or jargon. Another characteristic of communication among scientists is the use of accepted channels of informal and formal exchange of new "knowledge" and ideas. While informal communication of knowledge takes place through the "invisible college" system of telephone calls, paper exchanges and meetings over lunch, the more formal exchange of information and knowledge among scientists is carried on through the journals, conferences and books in the field. Printed indexes and electronic data bases of scholarly citations and abstracts allow researchers access to their literatures.

This study explores the proposition that there is a recognizable point in the development of a new branch of knowledge in a field which serves as the codifier of a vocabulary for the researchers of that field. The concept of the "terminology-setting event" is introduced here as this codification point. A terminology-setting event may be a scholarly conference, a special issue of a journal, or a particularly influential journal article. The key factor is that the terminology-setting event

connects a body of research to an agreed-upon set of terms or language.

Language is an essential element because manual indexes rely on a set of subject classifications under which information is arrayed. Electronic information retrieval systems rely on key words or phrases supplied by the searcher which are then matched with the terms in the electronically encoded data base records. Whether it is a term in the title, the abstract, or the key word field, the electronic system is capable of retrieving a bibliographic record of scholarly articles, papers, books, or documents as requested by the searcher. For both manual and electronic systems, the existence of a well-defined terminology of the field enhances the likelihood of a successful search of the literature, because the information retrieval systems rely on precise language.

A large body of scholarly literature deals with the technical designs of information retrieval systems, and with the proper role of such systems in libraries and other information retrieval organizations.[6] However, little attention has been paid to the questions of how information makes its way into these electronic systems, and what mechanisms are at work in the retrieval of information once it is encoded. This study looks at two hypotheses concerning how successfully information is retrieved from electronic data bases and manual information storage systems. Information retrieval systems are examined to learn how well they respond to "terminology-setting" events. Manual and electronic literature searches in three research areas comprise the data-gathering portion of this study.

Literature Review

The literature review of this study must be wide ranging and cover three distinct subject areas. The literature from the field of the

sociology of knowledge is useful for the perspective it offers on how knowledge is created and recognized within social groups. The literature from the field of mass communication offers insights on the nature of knowledge and information control within social systems and subsystems. The literature from the field of library and information science provides insights on the theory of electronic information retrieval and data base development.

Sociology of knowledge scholars have been concerned with the influence of social factors upon ideas, and the identification of societal influences which condition knowledge.[7] Language, insomuch as it is a creature of society or subgroups within society, is one social factor which influences knowledge. Thomas Kuhn, in his germinal work The Structure of Scientific Revolutions, argues that knowledge advances through "paradigm shifts."[8] Under pressure of overwhelming evidence in favor of a competing paradigm, the accepted paradigm, or body of agreed-upon knowledge, of a discipline may shift to a new view of accepted knowledge. A key element of this shift is the language by which phenomena are described. "Within the new paradigm, old terms, concepts and experiments fall into new relationships one with the other."[9] Barry Barnes expands on this idea: "The coherence of a body of writings is coherence between the meanings of the terms employed, meanings which are those current at the relevant time in the relevant context."[10] The recognition of an idea or a theory as acceptable "knowledge" is seen to depend, to some extent, on agreement among members of the relevant group, or "speech community," that a phenomenon is what it is called. The notion of accepted language for a discipline is particularly relevant for electronic information retrieval, which relies on computer recognition of specified terminology for success.

A number of scholars have studied the function of information control

within social groups.[11] The central issue in these studies is "which organization exerts what control, how, and for what reason."[12] Most of these studies have concentrated on the control news editors or news sources exert over mass media products, or the control mass media systems exert over communities or society.[13] However, information retrieval systems in themselves can function as a subsystem which exerts control over the types and variety of information retrievable by information searchers, whether news workers or scholars. These systems classify information according to language which is agreed upon as appropriate by the indexers and producers of the retrieval system. Group communication can be severely hampered if the language assigned by the system producer does not accurately reflect the language likely to be used by the "speech community" users of the system.

Library and information science scholars have investigated at great length the theories and technical specifications of information retrieval systems.[14] The research literatures of scholarly disciplines are recognized as essentially social in origin, as forms of dialogue and communication between scholars. Information retrieval systems, insomuch as they successfully store and retrieve scholarly information on demand, are recognized as links in a communication process between scholars in a discipline, and between disciplines themsevles. The quintessential challenge facing the designers of information retrieval systems is that of encoding the information to be stored so that any person searching for any item will be able to locate it, along with all others related to it in the system. Therefore, a good deal of effort in the field of library and information science is expended on designing and describing methods and techniques for better retrieval of information. However, questions about

what does and does not get recognized as knowledge, and what language is used to describe phenomena in a field affect the usefulness and performance of retrieval systems.

The Study

Literature in the sociology of knowledge suggests that a terminology-setting event should have the effect of codifying the language of an area, so that the research in that area is recognized in these new or codified terms. Since electronic information retrieval system are designed to search by specified key terms, it seems reasonable that a terminology-setting event will increase the probability of locating via the computer those items which use the codified term. A standard vocabulary for a field enhances the success of a search in an electronic system. Since most electronic retrieval systems are updated at least monthly, they can react quicker to developments in the research areas they serve than manual indexes. Therefore, terminology-setting events should be expected to result in more successful electronic searches, from the perspectives of both recency and comprehensiveness.

For this study, manual and electronic literature searches were conducted for materials published before and after a terminology-setting event in three subject areas. The total number of items found is the net sum of those items found manually and by computer. It follows that the effect of the terminology-setting event is to increase the proportion of the total items which are found by computer. Thus, at first glance a logical hypothesis of the study should be:

H: The number of items found electronically, as a percentage of all items located, will increase after a terminology-setting event.

This statement of the hypothesis masks the fact that items found electronically really fall into two groups. One group includes those items found both electronically and manually, and the other includes those items which are found only electronically. These two groups have significantly different ramifications for the information seeker. If the terminology-setting event merely enhances the ability of the electronic search to find things already identified manually, then it is not adding anything to the total number of articles found after the terminology-setting event. On the other hand, items found electronically which were not found manually are net additions to the total number of items found after the terminology-setting event. These unique items expand the range and success of the search.

Therefore, to leave the hypothesis as it is stated above will mask the underlying dynamics of the information search. It is necessary to present two hypotheses for this study, one dealing with each of the two types of items found electronically. These two hypotheses are:

H_a: The number of items found both electronically and manually, as a percentage of all items located, will increase after a terminology-setting event, and

H_b: The number of items found only electronically, as a percentage of all items located, will increase after a terminology-setting event.

The design of this study is a case analysis where three interdisciplinary social science research areas which met the following criteria were chosen.

1. the area must have existed as an area of research before the

terminology-setting event, but without an agreed-upon vocabulary.

2. at some point, a terminology-setting event must have occurred.

3. the area must have continued to be an active research area after the terminology-setting event so that items continued to be published.

4. the research area must have been recent enough to permit electronic literature searching (approx. 1970-present).

Three research areas meeting the criteria were chosen; the "agenda-setting" function of the press, the "new world information order, " and "critical viewing skills." These three research areas are of interest to the field of communication research, making them relevant choices in that respect, as well. In each case, the terminology-setting event affected the language used by researchers in the area, as literature searches in the area demonstrate. The terminology-setting event for agenda-setting was a conference held at Syracuse University in 1974 entitled "The Agenda-Setting Function of Mass Communications." As a result of this conference, a set of papers was later published through the Newhouse Communications Research Center entitled Studies in Agenda-Setting. Mass communication researchers and political scientists had studied this area prior to this time, using terms like issue salience or the surveillance function of the press to describe what they were studying. An important article was published in Public Opinion Quarterly in 1972 by Maxwell McCombs and Donald Shaw which called attention to the area as a viable research area for mass communication scholars.[15]

The new world information order research area grew out of a series of meetings and symposia among United Nations member countries. These meetings addressed the question of a free flow of information between first and third world countries. The third world countries argued for a "free

and balanced" flow of information. For this research area, the terminology-setting event occurred in 1976. The phrase "new world information order" was first used at the Symposium of Non-Aligned Countries on Communication held in Tunis in March of 1976.[16] Also in 1976, the Conference of Heads of State or Government of Non-Aligned Countries held a meeting in Colombo, Sri Lanka, and stated in its Political Declaration that "a new international order in the fields of information and mass communications is as vital as a new international economic order."[17] The debate over the flow of information between countries had been long-standing, but took on a new furor in the coining of this phrase.

The research area concerned with critical viewing skills brings together psychologists, educators, mass communication scholars and a variety of others from various disciplines. The terminology-setting event in this field was a conference held in 1979 in Philadelphia entitled "Education for the Television Age: A National Conference on the Subject of Children and Television." At this conference, a number of papers were presented which used the phrase "critical viewing skills" to describe attempts by educators and others to develop instructional programs about the mass media for public schools. James Anderson and Milton Ploghoft had been writing about this kind of skill development using the phrase "receivership skills" since 1974.[18] The Department of Education had funded curriculum development projects in eight areas of the country in 1978, using "television literacy," among other terms, as vocabulary to define what was being done. There was a good deal of research into this kind of skill development, but the vocabulary of the field was diverse before the 1979 conference.

Methodology

With the three research areas and the three terminology-setting events in mind, manual and electronic literature searches for materials published before and after the terminology-setting events were conducted. For each research area, the appropriate combination of manual indexes and electronic information systems were used, drawn from a master list of information sources.[19]

For each of the three research areas, searches were conducted using the "pure" terms of the area as established by the terminology-setting event (i.e. agenda-setting, new world information order, critical viewing skills). Searches were also conducted using terms which had been used to describe the research area previous to the terminology-setting event (e.g. issue salience, free flow of information, television literacy or receivership skills). The electronic information system searches were conducted so that the computer would scan every field of the record, searching for any occurance of the requested term or phrase. This is called a free-text search. For instance, the searches for agenda-setting were designed so that if the term "agenda-setting" occurred anywhere in the title, the abstract of the item, the key word field or the descriptor field, the record would be retrieved.

For searches in the manual indexes, it was not always possible to locate any items using the terms, old or new, which had been identified as appropriate. In these cases, the manual index entries were scanned for possible relevant items. An item was relevant if it had a recognized term or concept in the title or the abstract, where abstracts were included. When an appropriate item was located, the subject headings being used by the index were recorded.

Results

Items located through electronic or manual searches included journal articles, conference papers, books, government reports and miscellaneous publications. For each of the three research areas, item lists were "purified" by omitting those items originating in sources not scanned by electronic data bases.[20] Three categories of items were finally identified. There were those items which were located only by the electronic search, those items which were located only by the manual search, and those items which were located by both the manual and electronic searches.

The tables on the following page illustrate the results of the searches. The total items found in each of the three research areas are combined after figuring the appropriate before and after results for the terminology-setting event in each case. The direction of effect was the same in every instance, but the number of items found varied dramatically across the three areas.

TABLES

TABLE 1

AGGREGATED SEARCH RESULTS

	Before terminology-setting event	After terminology-setting event
Found electronically only, and electronically and manually	63%	63%
Found manually only	37%	37%
N =	38	243

TABLE 2

DIFFERENTIATED SEARCH RESULTS

	Before terminology-setting event	After terminology-setting event
Found electronically only	55%	43%
Found manually only	37%	37%
Found both electronically and manually	8%	19%
N =	38	243

The results of the study demonstrate the value of looking separately at the two component parts of the information searches; items found both electronically and manually, and items found only electronically. As Table 1 indicates, if the searches had been examined only in aggregate, no change would have been indicated. Before the terminology-setting events, 63% of the total items found were found via the electronic search, and after the events the percentage was also 63%.

However, when the various components of the searches are broken out, as in Table 2, a different pattern emerges. The first hypothesis of the study,

H_a: The number of items found electronically and manually, as a percentage of all items located, will increase after a terminology-setting event.

is supported. The percentage of items found both electronically and manually went from 8% before the terminology-setting event to 19% after.

The second hypothesis,

H_b: The number of items found only electronically, as a percentage of all items found, will increase after a terminology-setting event.

is not supported, however. The percentage of items located only electronically actually fell from 55% before the terminology-setting event to 43% after.

A further result indicated by the tables is the large increase in the total number of items found after the terminology-setting event as compared to before. Clearly, a terminology-setting event "legitimizes" a research area, stimulating a large number of researchers to explore the area in greater detail or from different perspectives. A scholar involved in a

terminology-setting event who teaches and directs dissertations may encourage graduate students to pursue a topic after it has been "legitimized" in this way, further increasing the amount of literature on the topic.

Discussion: Information Retrieval, Expansion or Contraction?

Anthony Smith, in Goodbye Gutenberg, observes; "We are rapidly moving towards a stage in the evolution of machine-read material in which the researcher will function in a wholly different way from the past. An on-line terminal will be the basic means for acquiring relevant information...It will substitute for visiting libraries and the searching of bibliographic indexes."[21] The results of this study suggest that this, if it does occur, might lead to a contraction of information retrieved.

Results here suggest that electronic information retrieval systems do not necessarily lead to an increase in the number of identified items. Terminology-setting events have a much greater effect on the researchers in a field than on the information retrieval systems serving them. The success of the electronic information searches relies almost totally on the fact that researchers in the three subject areas use the terms identified by the terminology-setting event in their paper and article titles, or in the abstracts they prepare for the system producers. The information retrieval system producers may have trained incapacities to respond to the terminology-setting events and, for that reason, may systematically exclude the new terms in the key word or descriptor fields of the electronic systems, or in the subject heading classifications in the manual indexes. That is, the producers of information retrieval systems are not in the "speech communities" which are determining the language of a field.

The findings here may have specific implications for academic

organizations. The divisions of the Association for Education in Journalism and Mass Communication elect liaison persons to work with the ERIC system producers and indexers. While none of the electronic systems appears to have been effective at including the new terms in the descriptor or key-word fields, the ERIC system was the most inclusive among all the electronic systems at doing so. The question about why this is so needs to be explored. It may be that structural changes among either scholarly organizations or retrieval systems developers could facilitate communication between the two groups.

In general, results here suggest that reliance on electronic information retrieval systems alone may have the effect of narrowing, concentrating and specializing the communication between members of a social group, or between social groups. As the body of items to be retrieved gets larger, the success of electronic information retrieval system goes down. There is, additionally, very little overlap between the items found electronically and those found manually. Manual index producers show very little responsiveness to terminology-setting events. However, skilled human searchers are able to recognize appropriate language variants under which items are classified. Electronic systems cannot. This suggests that the best strategy is a combination of both electronic and manual information search strategies.

There are degrees of manual and electronic search proficiency, however. Electronic systems can be characterized as "naive" searchers. The computer can only recognize items if they contain the few terms or phrases supplied by the researcher. On the other hand, a subject specialist searching a manual index is a skilled searcher. The specialist can scan the entire index for relevant subject headings, and can make

logical assumptions about how information may be classified, given the index's characteristics. This has implications for researchers who rely on assistants or non-subject specialists for their literature searches. Combining a naive electronic search with a naive manual search will not produce satisfactory coverage of the field. The manual search must be skilled enough to make up for the naive electronic search.

Researchers in a field may be able to control the communication among members of their social group by recognizing terminology-setting events and using the accepted terms in titles and abstracts of their scholarly work. However, if electronic information retrieval systems become the dominant formal method by which researchers investigate what their colleagues have to "say" about a topic, the recognized body of knowledge in that field will be much reduced. Electronic systems scan only a limited proportion of all the information available, and these systems define "accepted" information in a very traditional manner. The odd publication or the inventive interdisciplinary approach will not be recognized by electronic systems as they are now designed.

Developments in information retrieval system design now suggest that it may be possible to use a search design based on references and citations in the documents located.[22] In this technique, a researcher would identify a relevant "entry" document. The electronic system would generate for that document a file of potentially related documents linked to that entry document either via the references in that document, or the citations of that document by others. The use of bibliometric analysis based on citation links between related publications was studied by Reeves and Borgman for the communication field.[23] Their results suggest that, while there is a trend toward theoretical integration in some areas of communication research, there still is a rather distinct grouping of

interests. An electronic system based on citation analysis in the communication field would still not be entirely successful, therefore, in retrieving all related documents for a subject area.

Further research on the topic of language development and information retrieval may include a study which investigates researchers' or news professionals' use of electronic information retrieval systems. Their "products," (research papers or news reports) could then be examined to see how the electronic search is reflected in the work. Another study could investigate whether those individuals who have expertise using a variety of information retrieval systems have an advantage in power or prestige over those who rely solely on one method or the other. Further research could also expand on the idea of terminology-setting events and the development of "speech communities" as a method of communication control and facilitation among social groups. Additional research could also investigate how information retrieval systems contribute to, or hinder, the development of a body of recognized knowledge in a field, expanding on the sociology of knowledge perspective. Noting the large increase of items published after terminology-seting events, a study could use time series analysis to investigate the patterns of publication and knowledge development for different areas after such events. This combination of a variety of research perspectives suggests a rich field for further investigation.

Notes

[1]See S. Stoan, "Computer Searching: A primer for the uninformed scholar," Academe, 68(6): 10-15, (November-December, 1982). T. Miller, "Information, Please, and Fast: Reporting's revolution, data bases," Washington Journalism Review, 51-53, (September 1983).

[2]See R. B. Arundale, "The Study of Language: Relationships to Communication," Chapter 1 in Progress in Communication Sciences, Vol. III, B. Dervin and M. J. Voigt, eds., (Norwood, NJ, Ablex, 1982).

[3]Ibid., p. 14.

[4]D. Hymes, Foundations in Sociolinguistics: An Ethnographic Approach, (Philadelphia, PA, University of Pennsylvania Press, 1974), Chapters 1-4, 10.

[5]See D. Crane, Invisible Colleges: Diffusion of Knowledge in Scientific Communities, (Chicago, IL, University of Chicago Press, 1972). W. D. Garvey and B. C. Griffith, "Scientific communication as a social system," Science 157, 1011-1016, (1967). W. D. Garvey, N. Lin and C. E. Nelson, "Communication in the physical and social sciences," Science 170, 1166-1173, (1970), and others.

[6]See F. W. Lancaster, Information Retrieval Systems: Characteristics, Testing and Evaluation, 2d ed., (New York, NY, John Wiley, 1979) for an overview of this area.

[7]See E. B. Montgomery, ed. The Foundations of Access to Knowledge, (Syracuse, NY, Syracuse University Press, 1968). T. S. Kuhn, The Structure of Scientific Revolutions, 2d ed, (Chicago, IL, University of Chicago Press, 1970). W. Lachenmeyer, The Language of Sociology, (New York, NY, Columbia University Press, 1971). M. Mulkay, Science and the Sociology of Knowledge, (London, George, Allen and Unwin, 1979). B. Barnes T.S. Kuhn and Social Science, (New York, NY, Columbia University Press, 1982).

[8]Kuhn, The Structure of Scientific Revolutions.

[9]Kuhn, p. 149.

[10]Barnes, p. 3.

[11]D. Katz and R. L. Kahn, The Social Psychology of Organizations, (New York, NY, John Wiley, 1966). J. McDermott, "Knowledge is power," Nation, 458:469, (April 14, 1969). R. K. Merton, Social Theory and Social Structure, (New York, NY, Free Press, 1957). S. A. Lakoff, "Knowledge, power, and democratic theory," Annals of the American Academy of Political and Social Science, 394, (1971).

[12]G. A. Donohue, P. J. Tichenor and C. N. Olien, "Gatekeeping: Mass Media Systems and Information Control," Chapter 2 in Current Perspectives in Mass Communication Research, F. G. Kline and P. J. Tichenor, eds., (Beverly Hills, CA, Sage, 1972), p. 41.

[13]See D. M. White, "The Gatekeeper: a case study in the selection of news," Journalism Quarterly, 27 383-390, (1949). W. Breed, "Newspaper 'Opinion Leaders' and Processes of Standardization," Journalism Quarterly, 35:277-284, 328 (1955). G. H. Stempel III, "How Newspapers Use the Associated Press Afternoon A-Wire," Journalism Quarterly, 41:380-384, (1964). G. Tuchman, Making News: A Study in the Construction of Reality, (New York, NY, Free Press, 1978). Also see G. A. Donohue, P. J. Tichenor and C. N. Olien, "Mass Media Functions, Knowledge and Social Control," Journalism Quarterly, 50:652-659 (1973). M. McCombs and D. Shaw, "The Agenda-Setting Function of the Mass Media," Public Opinion Quarterly, 36:176-187 (1972). P. J. Tichenor, G. A. Donohue and C. N. Olien, Community Conflict and the Press, (Beverly Hills, CA, Sage, 1980).

[14]See J. H. Shera, "An Epistemological Foundation for Library Science," in the Foundations of Access to Knowledge, E. B. Montgomery, ed., (Syracuse, NY, Syracuse University Press, 1968). F. B. Thompson, "The Organization is the Information," American Documentation, 305-308, (July 1968). R. Fidel and D. Soergel, "Factors Affecting Online Bibliographic Retrieval," Journal of the American Society for Information Science, 34(3):163-180, (May 1983). C. H. Fenichel, "The Process of Searching Online Bibliographic Databases: a review of research," Library Research, 2(2):107-127, (1980).

[15]M. McCombs and D. Shaw, "The Agenda-Setting Function of the Mass Media," Public Opinion Quarterly, 36:176-187, (1972).

[16]D. Diene, "UNESCO and Communications in the Modern World," Journal of International Affairs, 35(2):217-224, (Fall/Winter 1981-1982).

[17]M. Masmoudi, "The New World Information Order," Journal of Communication, 29:2, (Spring 1979), p. 185.

[18]J. Anderson and M. Ploghoft, "Curricular approaches to the development of receivership skills appropriate to televised messages," paper presented to the Speech Communication Association convention, 1974. "Television viewer skills and social literacy," paper presented to the National Council for Social Studies convention, 1975. "Television receivership skills: the new social literacy," paper presented to the International Communication Association convention, 1977.

[19]Electronic information retrieval systems: America: History and Life, ERIC, Magazine Index, National Newspaper Index, Psychinfo, Public Affairs Information Service, Social SciSearch, Sociological Abstracts, U.S. Political Science Documents. Manual indexes: Books in Print, Communication Abstracts, Current Index to Journals in Education, Directory of Published Proceedings, Index to Social Sciences and Humanities Proceedings, International Political Science Abstracts, Public Affairs Information Service Bulletin, Research in Education, Social Sciences Index, Sociological Abstracts, Topicator, U.S. Political Science Documents.

[20]Electronic data base producers scan a core set of publications from which they take the materials which make up the data base. This core set of publications is different for each electronic data base, and may change from year to year for individual bases, depending on the cessation or start-up of journals, or the shift in focus of titles scanned. Most data base producers claim to scan the most important journals or publications in whatever field they serve, but the determination of "importance" varies from data base to data base. Manual index producers do the same type of scanning, but the titles they scan may not correspond to those the electronic systems scan. Therefore, there are some things located through manual indexes which cannot be located through electronic systems, and vice versa, because they scan different core sets of publications.

[21]A. Smith, Goodbye Gutenberg: the newspaper revolution of the 1980's, (Oxford, Oxford University Press, 1980), p. 118.

[22]T. R. Kochtanek, "Document Clustering, Using Macro Retrieval Techniques," Journal of the American Society for Information Science, 34(5):356-359, (September 1983).

[23]B. Reeves and C. Borgman, "A Bibliometric Evaluation of Core Journals in Communication Research," paper presented to the International Communication Association, 1982.